Planning the inquiry

1. What is our purpose?

To inquire into the following:

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Class/grade:

School: Upper Canada College

Title: Swimming

Teacher(s):

Date:

Age group: 9–10 years

School code:

transdisciplinary theme

PYP planner

How the world works

An inquiry into the natural world and its laws; the interaction between the natural

world (physical and biological) and human societies; how humans use their

understanding of scientific principles; the impact of scientific and technological

advances on society and on the environment.

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central idea

Proposed duration: 12 hours over 4 weeks

Effective swimming is dependent upon maximizing propulsion and minimizing

resistance.

Summative assessment task(s):

What are the possible ways of assessing students’ understanding of the

central idea? What evidence, including student-initiated actions, will we

look for?

Students will be observed swimming a stroke of their choice and assessed

(using a rubric) on how effectively they apply their understanding of propulsion

and resistance to their stroke. Students will be recorded on video and they will

reflect on their own performance in relation to the central idea.

2. What do we want to learn?

What are the key concepts (form, function, causation, change, connection,

perspective, responsibility, reflection) to be emphasized within this

inquiry?

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Form

Function

Related concepts: resistance, propulsion

What lines of inquiry will define the scope of the inquiry into the central

idea?

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How we move in the water

Why established swimming strokes exist

What teacher questions/provocations will drive these inquiries?

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What is propulsion and what is resistance?

How do propulsion and resistance relate to a swimming stroke?

How can we increase propulsion when swimming?

How do we reduce resistance when swimming?

Personal, social and physical education scope and sequence

Sample planner 5

Planning the inquiry

3. How might we know what we have learned?

This column should be used in conjunction with “How best might we learn?”

4. How best might we learn?

What are the learning experiences suggested by the teacher and/or

students to encourage the students to engage with the inquiries and

address the driving questions?

The following swimming activities will be used to develop understanding of the

roles propulsion and resistance play in effective movement through the water.

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Swimming with various objects that create drag

Swimming in positions that create drag

Swimming with fins and/or paddles to increase propulsion

What are the possible ways of assessing students’ prior knowledge and

skills? What evidence will we look for?

All students have completed a “Swim to survive” programme the previous year.

(This is a Canadian Lifesaving Society programme that requires students to

perform safe entries, tread water and swim 50m.)

Students each swam one width of the pool in order to gauge skill ability and

individual understanding of safe swimming practices. This information informs

practical grouping to ensure students with less experience can be safely

accommodated in the shallow end of the pool.

The evidence will include body position, efficiency of hand recovery, leg kick,

and head position when breathing.

What are the possible ways of assessing student learning in the context of

the lines of inquiry? What evidence will we look for?

Each class will be punctuated with discussions around the white board where

students can contribute and establish important technical points. Students will

then observe one another and give feedback on the selected teaching points (for

example, pushing off from the side of the pool in a streamlined position;

remaining streamlined while breathing in front crawl/freestyle). Evidence of

understanding can be observed during discussions, swimming performance and

in feedback given to peers.

The students fine-tune the techniques used in established swimming strokes

and explore principles of propulsion and resistance. Experiences to include

individual, partner and group activities, e.g. games and relays where students

can refine streamlined body positions, faster leg kick, position of head when

breathing, more efficient hand recovery.

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Trying to push off as far across the pool as possible without swimming

Swimming front crawl/freestyle head-up vs head-down

Changing shaping of hand as it moves through the water

Changing length of pull

Students will demonstrate a (recognized) stroke of their choice using their

knowledge of the principles. Each student will reflect on their own performance

using video recorded evidence.

What opportunities will occur for transdisciplinary skills development and

for the development of the attributes of the learner profile?

Social skills—cooperating with a swim partner

Communication skills—providing and listening to feedback

Self-management skills—gross motor skills, spatial awareness, safety, codes of

behaviour

Research skills—observing

Learner profile—communicators (through the partner work)

5. What resources need to be gathered?

What people, places, audio-visual materials, related literature, music, art,

computer software, etc, will be available?

Laminated photographs of swimmers, video recorder, camera.

How will the classroom environment, local environment, and/or the

community be used to facilitate the inquiry?

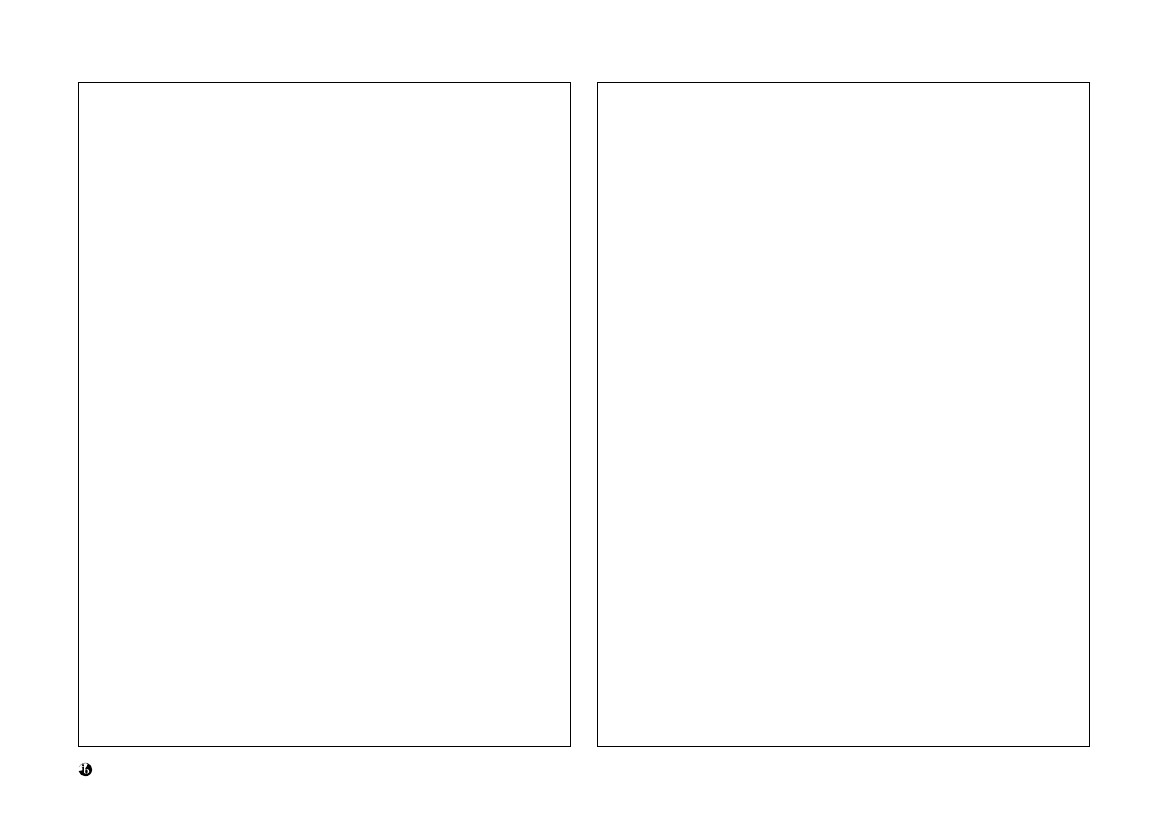
Everyday objects that might create drag, e.g. empty plastic containers, hoops,

clothing.

Fins, hand paddles, kick-boards, pull buoys.

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Reflecting on the inquiry

6. To what extent did we achieve our purpose?

Assess the outcome of the inquiry by providing evidence of students’

understanding of the central idea. The reflections of all teachers involved

in the planning and teaching of the inquiry should be included.

Students’ swimming techniques generally improved. They enjoyed being in the

role of teacher, providing feedback to their peers. For the summative task, some

students were inclined to demonstrate a difficult stroke (for example, butterfly)

rather than the stroke that allows them to demonstrate their understanding more

fully.

When reading the written reflections made by students for inclusion in their

portfolios, it was apparent that their understanding of the meaning of the actual

terms “propulsion” and “resistance” was limited—they seemed to confuse the

two. More effort should be made to solidify the definitions with the students or

alternatively to use more developmentally appropriate language to unpack the

central idea.

How you could improve on the assessment task(s) so that you would have

a more accurate picture of each student’s understanding of the central

idea.

Video footage taken of the students was used as part of student-led

conferences. This footage could be used earlier in the unit for formative

assessment to help the students reflect on their own performances, identify

areas for improvement and adjust their techniques. This might also inform the

choice of stroke that was mentioned above.

What was the evidence that connections were made between the central

idea and the transdisciplinary theme?

The efficiency of the students’ swimming strokes improved. As mentioned

above, the concepts within the central idea should be addressed in a more

developmentally appropriate way to increase understanding. The students

applied the concepts effectively in the water, but did not necessarily differentiate

between the terms “propulsion” and “resistance”.

The students were able to make connections with the transdisciplinary theme in

that the concepts of aerodynamics and hydrodynamics can be applied to a wider

context, e.g. vehicles, other living things. It is likely that more connections could

be made in the future.

7. To what extent did we include the elements of the PYP?

What were the learning experiences that enabled students to:

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develop an understanding of the concepts identified in “What do we

want to learn?”

demonstrate the learning and application of particular

transdisciplinary skills?

develop particular attributes of the learner profile and/or attitudes?

In each case, explain your selection.

By isolating and observing different aspects of stroke technique, the students

were able to explore understanding of form and function.

The partner feedback gave the students the opportunity to develop and apply

research (in particular, observing) and communication skills (in particular,

listening and speaking).

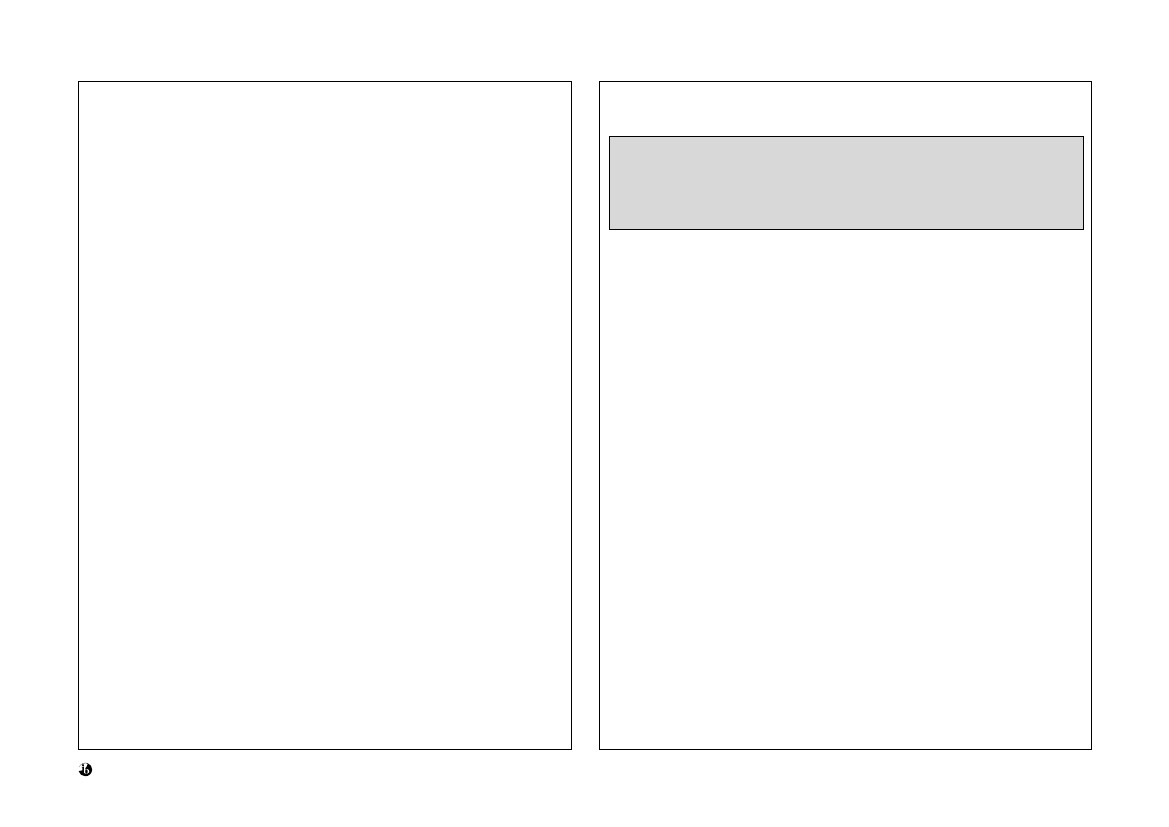
The partner feedback also gave good opportunities for developing the learner

profile attribute of communicators.

Overall, the activities provided an authentic stimulus for inquiry.

Personal, social and physical education scope and sequence

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Reflecting on the inquiry

8. What student-initiated inquiries arose from the learning?

Record a range of student-initiated inquiries and student questions and

highlight any that were incorporated into the teaching and learning.

Many students were interested in the race start for backstroke and this led to

interesting inquiry into the benefits of pushing off under water versus out of the water

in a racing start.

At this point teachers should go back to box 2 “What do we want to learn?”

and highlight the teacher questions/provocations that were most effective in

driving the inquiries.

The questions “How can we increase propulsion when swimming?” and “How do we

reduce resistance when swimming?” got to the heart of this inquiry. Follow-up

questions such as “What can we do with our hands to increase propulsion?” were

raised during the inquiry and elicited numerous verbal and active responses from

students.

What student-initiated actions arose from the learning?

Record student-initiated actions taken by individuals or groups showing their

ability to reflect, to choose and to act.

It is likely that student-initiated actions in relation to this unit will be identified and

recorded on the planner over the course of the year.

9. Teacher notes

IB note: This unit was planned prior to the development of the PYP Personal,

social and physical education scope and sequence (2009). To inform future

versions of this unit, teachers could refer to the PSPE scope and sequence

and in particular to the conceptual understandings and learning outcomes

identified in the continuums for active living and interactions.

Personal, social and physical education scope and sequence

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